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Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey Hydrographic

Field No. ..... Office No. 3355

LOCALITY

State Alaska

General locality Cook Inlet

Locality .....

1941

CHIEF OF PARTY

O. F. Gilliam

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Department of Commerce and Labor

Coast and Geodetic Survey

O.H.Tittmann, Superintendent,

HYDROGRAPHIC SHEET 3355

ALASKA

Western Shore of Cook Inlet

HARRIET POINT TO POINT CHINITNA.

Scale 1-100,000

1911

By the Party of the Steamer McArthur

C.G.Quillian

Assistant, C.& G.Survey,

Chief of Party.

Statute Miles

Nautical Miles

Kilometers

Soundings Platted by C.G.Quillian, H.Bernhardt, &C.G.Braunlin.

Tide guages at Seldovia, Tuxedni Harbor, Chinitna Bay, and

N.end of Kalgin Island (Asst.F.H.Hardy, 1911.)

3355

Hyd. 3355

DESCRIPTIVE REPORT

ALASKA

COOK INLET

POINT CHINITNA to HARRIET POINT

Ship Sheet

Scale 1/100,000

1911

Party of the

Steamer McArthur

C.G.Quillian,

Assistant, C?& G.Survey

Chief of Party.

1 Northward of Chinitna Bay 3355

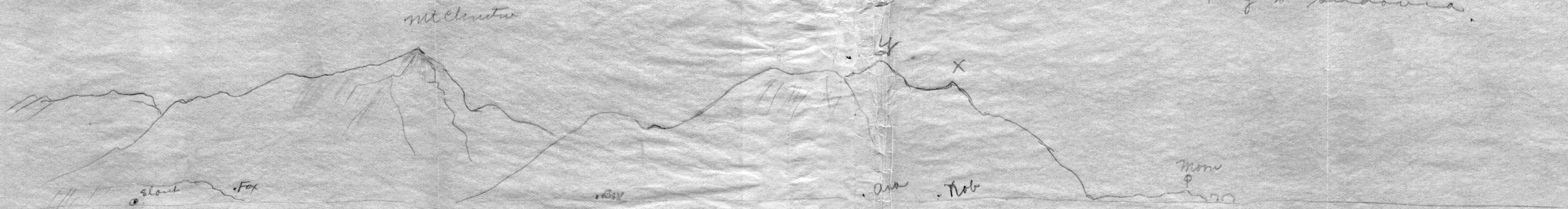
2

Hills as seen on course from Chinitna Bay
to [illegible] and about 5 to 10 miles off Chinitna Bay
Northward of Chinitna Bay.

3 Northward of Chinitna Bay

Southward of Christina Bay.

1



2

Southward of Christina Bay

Hills S. of Christina Bay as seen when about 5 miles off on course from Christina Bay to Sedovia.

H. 3355.

Sheet examined in Div. of Hyd'y & Top'y.

Offshore hydrography Cook Inlet.
Shoreline should have been sketched on sheet continuously.
The soundings should be amplified in plans note long shoal.

DESCRIPTIVE REPORT HYDROGRAPHIC SHEET No.

Western Shore of Cook Inlet, Alaska

(Point Chinitna to Harriet Point)

The following notes are submitted as a descriptive report of the ship sheet done by the McArthur during the season of 1911.

At no time did the vessel round Point Chinitna, and consequently no notes were made of the coast to the southward. However, from what could be seen when working off Point Chinitna the shore line to Oil Bay seemed to be correctly placed on Chart 8554.

To one approaching the western side of Cook Inlet from Shelikof Straits, or proceeding towards Chinitna Bay from Cape Elizabeth or Seldovia, the most prominent points are the three volcanoes, viz., Augustine, Iliamna and Redoubt, the two latter being snow-covered peaks.

A nearer approach to the shore line, and the foothills become prominent, the altitudes ranging from two to four thousand feet.

The coast northward from Point Chinitna is steep to, with rocky cliffs at the water line, and the hills rise sharply. Here and there is a water fall from some of the streams in the valleys. The most conspicuous fall is 0 Cas.

The south entrance to Chinitna Bay is prominent, with 2000 ft. peaks a short distance from the shore. Mt. Chinitna is the most prominent peak in this range. It is bare and brown, and the top is sharp and steep.

Moon Island, as the small group of islands in the entrance was called (solely for the reason that the signal placed on the highest

part bore the same name), is not prominent until within four or five miles. Shores are low, rocky bluffs. No trees on the islands; top grass-covered; highest part is about 140 ft. above M.W.

Chinitna Bay is not remarkable. (For a fuller description see the harbor sheet on scale of 1/40,000.) The prominent objects in and near the bay are Mt. Chinitna; Pks. X, and Y, with the steep slope above 0 Nob; Moon Islands; the low point, shingle and grass-covered, near 0 Camp; Mt. Eleanor; the wooded bluff and island where 0 Veal is located; the steep bluff and precipice at 0 Bluff; and the tangent to the north entrance, which is a gravel bluff about 50 ft. high with the top thickly covered with spruce and fir. Besides these Iliamna Volcano and the Twin peaks are very prominent, as are the numerous 3 to 5 thousand feet peaks which lie back and to the N.W. of the bay and which show black and jagged in the late summer.

The coast from Chinitna Bay to the point at Bear Flat is low and covered with small trees. The point itself is inconspicuous, is composed of small gravel and sand, and is only a few feet from H.W. This low shore line continues until the creek near 0 Times is passed.

There are numerous sloughs beyond H.W. line, and some quick sand. This shore line seems to be formed by a deposit of glacial silt.

Just North of 0 Times the rocky bluff begins again. The bluff at the water line is 50 to 100 ft. high, with the top and first 1000 ft. of the easy slope up to the summit of Slope Mt. covered with a dense growth of alders. This bluff continues well into Tuxedni Hbr.

Chisik Island is one of the most prominent objects along the west shore of the Inlet. The north end of the island is sheer bluff

from the summit for over 1000 ft. The island lies N.E. and S.W., is about 5 miles long, and has a notable hump at the S.E. end. This hump is about 600 ft. high and is covered with grass and alders, and there is a large gull rookery along the bluff just south of the hump. The coast line of the entire island is bluff and gradually increases in height as the N.W. end is approached. From north or northeastward of the island it has the appearance of an immense wedge, as does Slope Mountain from the same directions. The south shore of the island (inside Tuxedni Harbor) is steep, and after clearing the small reef off the S.E. end there are no dangers until the anchorage is passed.

Duck Island (so called locally) on which △ Isle is placed is a small bare brown island off the north side of Chisik Id., and is not prominent until clear of Chisik Id. Reefs extend from 1/4 to 1/2 mile off the island.

Beginning at Woodchuck Point and the small island, also called Woodchuck, which is connected with the point at L.W. (This point is at △ Wood, and was called Woodchuck because of the ~~many~~ number of those animals seen when the signal was built), the shore line describes a concave curve to Pt. Redoubt. The shore line is formed by a low gravel bank 8 to 20 ft. above H.W., with here and there a large boulder (as signals Cap and Big). The top of the bank is covered with small trees, and a wooded valley extends from the beach well toward the south base of Redoubt Vol. Two streams drain at ⊙ Wood and ⊙ Indian respectively; neither are navigable by small boats.

Redoubt Point is conspicuous for about ten miles; it is an alder covered bluff from 200 to 300 ft. high, with a number of bare

slides at various places. Smooth hill behind the point rises easily to a large knoll about 3150 ft. high, with scattered clumps of trees.

Northward from Point Redoubt the shore line forms another concave curve until Harriet Point is reached, where it recedes sharply to the west. Midway between Redoubt and Harriet Points is a low sandy spit (0 Key) off which lies a boulder-infested flat, which continues to Harriet Point. Two miles south of Harriet Point the gravel bluff begins again, and continues around the point. Its heighth is from 50 to 75 ft.; face is bare and light colored and the top covered with alders; while the space between H.W. and L.W. mark is covered with large boulders. Harriet Point is prominent and unmistakable.

The general appearance of the foothills can be seen from the contours sketched on the sheet and from the profile sketches attached and in the back of the Description of Signals. The hills are formed of conglomerate, with many smooth boulders embedded in it, the greater part of them slope gradually from the water, while the slope at right angles is very steep. All are covered with heavy growths of alders to about 1000 to 1500 ft. level, above this level grass and moss and loose bare rocks are seen.

The most prominent features, peaks, etc., are listed below-

(1) Pt. Chinitna low 50 ft. bluff with scattered spruce and alder for 1/2 mile from shore, then brown bare hills.

(2) Slide a light covered slide about the 600 ft. level.

(3) Cascade (0 Cas) a prominent waterfall.

(4) Mt. Chinitna Brown bare hill, very steep, summit bare black rock.

(5) Mt. Eleanor Sharp black peak with a small patch of snow near summit.

(6) Moon Islands Bare rocky sides and shores, grass covered mound, 140 ft.

(7) Veal a 50 ft. rocky bluff with wooded top, looks like an island.

(8) N. Tangent to Chinitna Bay Yellow gravel bluff, 50 ft. high, wooded.

(9) Bear Flat Low, sandy; wooded 200 yds. inshore.

(10) Horn (3200 ft.) A sharp brown spike on highest part of a circular hill, like an old crater.

(11) S. Twin a very sharp and jagged, snow-covered peak.

(12) N. Twin a blunt topped, snow covered peak.

(13) Iliamna Ridge a snow covered shoulder of Mt. Iliamna, with a bare, dark colored precipice on north side. Smokes at times from below top on north side.

(14) Iliamna Volcano A rounded symmetrical peak. Top blunt and level about 400 meters diameter, capped with ice of 50 ft. thickness, entire mountain is snow-covered and numerous glaciers are along the 5000 ft. level on all sides. Smokes a little from a bare spot a little below top.

(15) Club A brown bare clubbed-shaped peak.

(16) Perkins A very sharp brown peak (4330 ft.) has a patch of snow just below summit and to eastward. Makes an excellent signal.

(17) Lucile A brown peak smooth top, some loose rock.

(18) Red Glacier very prominent when directly off it. The lower part of the glacier (between Lucile and Lenore Hills) has a red

or rusty brown tinge with numerous lumps and fissures. Color comes from a couple of red hills behind Perkins. Probably some form of iron ore.

(19) Lenore A smooth brown hill, loose rock at top; Henry (20) is a lower summit of same hill; and (21) John is the inner summit where the bluff falls behind the hill.

(22) Sadie a spike like rock, highest part of brown hill.

(23) Triangle Pk. Summit of a brown terraced hill, has a triangular appearance from northward. The higher and eastern summit was cut in.

(24) Slope Mt. Highest part of brown hill just below Tuxedni Hbr., the name "Slope Mountain" aptly describing it. The mountain extends westward from the highest point in a series of terraced ridges which are very prominent when entering Tuxedni Harbor, and the back end of the peak is easily mistaken for the Slope Mt.

(25) Hump A brown alder-covered hump 600 ft. high at S.E. end of Chisik Island. On the south side of the island this hump falls away in a 500 ft. precipice to the water. Large numbers of gulls breed here, and their cries mark the spot.

(26) Fossil Point (at 0 Point) A wooded precipice at head of Tuxedni Harbor. Good leading point when entering, about 75 ft. high. So called by cannery men from number of fossils found hereabouts.

(27) Edni Name of signal on shingle beach near an abandoned house. There is a prominent lone cottonwood tree on the spit; when the tree is open of Tooth or Pillar Pt. the reef off S.E. end of Chisik Id. is cleared.

(28) Tooth Pt. or Pillar Pt. A tooth shaped spike on S. side of

Chisik Island.

(29) Chisik Head a mass of dark colored bluffs at the north end of the island, prominent from N. and N.E.

(30) Peak C A sharp brown peak, loose rock at top.

(31) Peak D A black knob on a high dark ridge.

(32) Hill A A brown hill with loose rock along top, shows to left of a similar peak with a deep narrow valley between.

(33) Pt. Redoubt Steep sloped bluffs, alder covered, 200 to 300 ft. high, with a few bare slides down face of bluff.

(34) Harriet Point 50 to 75 ft. gravel bluff, face bare, yellow, top alders. Gradual slope to foothills.

(35) Pin Pk. A pin topped bare brown pk., not prominent.

(36) Redoubt Volcano Over 10,000 ft., a most prominent snow-covered peak; from North and Eastward it is symmetrical. Top about 300 meters diameter. No smoke seen. On west side is a shoulder and smaller peak about 9000 called Redoubt Jr. can be seen from Tuxedni Harbor and southward.

(37) Sharp Peak (3600 ft.) the outer brown peak as seen from Harriet Pt. and southward. Is very conspicuous until in range with Kalgin Island, when it becomes confused with other ~~smaller~~ similar peaks.

Bottom.

Off Chinitna Point and northward the bottom has an easy slope. The 20 fathom curve is well offshore, and gradually shoals until the 10 fathom curve is found from 2 to 3 miles off shore.

Deep water extends close in to the bluffs south of Chinitna Bay. Chinitna Bay itself is comparatively shoal. Its bottom is soft mud

and is probably glacial silt.

Off Bear Flat there is an extensive shoal with very irregular bottom. This flat extends from six to seven miles off shore. The shoalest soundings found were about 3 1/2 fms., but this vicinity should be avoided as there may be boulders of less depth on the flat. The ship sounded over this region under a slow bell, but the development was not as close as would be required for important channels. A drag or sweep would be necessary to catch boulders if present. This flat may be the ancient terminal morraine of the large red glacier and the other large glacier back of Sadie Hill. This flat is marked by tide rips at all times except slack water, and would be dangerous for small boats in a heavy wind. Outside the flat the water deepens rapidly to 30 fathoms and thence to 40 and 50 fathoms at the limit of the work where it joined on to that of the Patterson (W. E. Parker, 1910).

Off Signal Times the water is discolored by the streams out to the 10 fathom curve or for 1/2 to 3/4 mile.

Deep water is alongside the bluffs at foot of Slope Mt., and continues into Tuxedni Harbor. The water off the mouth of Tuxedni Harbor and at all times in the harbor is discolored glacial water, and has its characteristic whitish color.

Northward of Chisik Harbor the main channel is deep and the deep water extends close to the shoal banks inside the line from S.E. End of Chisik Island to Harriet Point. See Sheet.

Tides and Currents.

The tides are large, but not so large as on the eastern side of the Inlet. The tide at Tuxedni Harbor has less range than at Seldovia. No tidal reductions were made in the field except near a

local gauge, as inside Tuxedni Harbor and Chinitna Bay. All other tidal reductions were left to the tidal division, as it is believed that the method pursued in 1910 in reducing tides in Cook Inlet will give more satisfactory results. More so now that the time relations established between Seldovia and the various stations of 1910 are supplemented by Capt. Hardy's stations at Kalgin Id. and Harriet Point and by my staffs at Tuxedni Harbor and Chinitna Bay.

Currents have to be ~~reconed~~ reckoned with in all navigation of the Inlet, especially in crossing the inlet. The currents along the West Shore are not so strong as in the middle or along the east side. Range from 2 to 4 knots. There is also a westerly set from the current entering between Barren and Chugach Is., so that the set is from N.W. to N.N.W., with decidedly more westerly set around Chinitna Bay.

The limits of tide rips as encountered in the sounding are entered in the records. The limit extends along the outer edge of the shoals off Bear Flat. None were noted south of the N. Tan. of Chinitna Bay. They are most marked some six miles off Bear Flat. The direct course from Seldovia to Tuxedni Harbor crosses the line of these rips. They can be avoided by holding for a point some 6 miles S. 75 E. true from the S.E. end of Chisik Is., and small boats will do well to take that route.

These rips are doubtless caused in part by the shoals and in part by the meeting of the currents from Shelikof Straits and from between the Barren and Chugach Islands.

A small rip is noticed on the ebb at the junction of the flow from Tuxedni Harbor and the main body of the Inlet. The line is very distinct because of the glacial water from the Harbor.

Off Harriet Point the currents are swiftest. In S.E. blows

heavy tide rips are found here. The McArthur avoided the worst of the rips during one of these blows by holding well down to Pt. Redoubt and then setting course for Seldovia.

Weather.

Mild weather prevailed this season; very few blows; no gales. All blows were S. to S.E. Rain did not interfere materially with the work. Fog was very common during the last of June and all of July. A light to moderate Southerly breeze would bring a fog bank up the western shore. Appeared most frequently in the afternoon. Tuxedni Harbor would rarely fill up until past midnight. A number of times work was ceased in fog and course set for Tuxedni Harbor, and while the fog lay very thick along the north side of Chisik Island, as soon as we had passed the line between signals Pat and Gabe we would run out of the fog. However, the next day the harbor would be foggy until 9 or 10 oclock.

In September clear strong westerly winds prevailed and blew strongly down Tuxedni Harbor and out of Chinitna Bay and through the valleys leading to Mt. Iliamna.

Anchorages.

Chinitna Bay is secure from all except N.E., and I do not believe that a heavy sea makes in then. Local reports were vague, but there were no reports of heavy seas in the anchorage. The main body of the bay is open to S.E. Vessels can anchor under the south shore so as to avoid the sea. Small vessels of 12 ft.,or under,draft can find secure anchorage in the inner anchorage in 12 ft. water at lowest tides soft, mud bottom, with scant swinging room. With west-

erly winds the williwaws are strong, and also blow strong out of the bay. Currents are weak, the strongest being about one knot.

There is a channel south of Moon Island with depths of 7 fathoms. See the 1/40,000 sheet. The wider channel, and the one used by this vessel, is north of Moon Island. Enter on midchannel courses and keeping at least one mile off Moon Id., or midway between the island and the north shore. When the island shows clear of the south tangent haul down for the low point on south side at 0 Camp and anchor at will according to depth desired. More shelter is secured the farther in one goes. If desirous of entering the inner anchorage pass close to 0 Camp and anchor 1/4 mile beyond the point. Shoals lie about 1/2 mile off Moon Island. A bank projects from the south shore at Nob and Dead, and there is a rocky reef 1/4 mile off 0 Rose. The upper end of the bay bares at low water. Fresh water at 0 Camp or near 0 Nob.

Tuxedni Harbor is sheltered from all seas. Any gale will bring heavy williwaws and a choppy sea dangerous to small boats. Currents run from 1 1/2 to 2 1/2 knots on the ebb for about 7 hrs. Flood 1 to 1 1/2 knots for 5 hrs. Anchorage may be had near the south end under the hump, or in 17 fathoms, mud bottom, off the house on the spit at 0 Edni. Fresh water can be had at any of the streams down Chisik Island. The best and most convenient, where the boat can get right under the fall at half tide is about half way between 0 Edni and 0 Tux. A fine clear stream falls over the bluff here. At one time the cannery ships from the Kasilof Cannery were moored in this harbor during the summer. It was called Snug Harbor at that time. Reports said that a number of anchors had been lost here in williwaws. One man, master of a cannery tender, said he had seen a ship's

boat with four men lifted clear of the water in a squall. I may say that this party experienced no such winds. From reports I do not think that the bay entirely freezes in winter, but there are sufficient ice floes to make navigation extremely dangerous. I heard of one winter when ice was reported to fill the Inlet nearly to Anchor Point. With one exception there is no record of any one visiting the west side later than December. The exception was when Mr. W.G. Whorf, a cannery man of Seldovia, but not a seafaring man, wintered in Tuxedni Harbor involuntarily. He reports that the cold was intense; that immense ice floes, ten to twenty feet above water, filled the bay, and the grinding together of these floes could be heard a long distance; that a steamer tried to rescue his party late in November, but could not get within several miles of the entrance. From a more detailed questioning, I decided that there was no attempt made by this party to reach the S.E. end of the island, and they did not venture far from the camp which was near 0 Edni. The ice was, however, so heavy that they did not dare making the attempt to leave with a sea-otter boat, even when their supplies were limited to seal meat and a couple of dogs as a reserve.

This party was able to get away with their boat in April.

When the McArthur arrived in the middle of June there were large cakes of ice on the flats, and considerable snow above the 100 ft. level. No floating ice was seen.

To enter, keep 1/2 mile off the outer end of Chisik Island until the lone cottonwood tree on the spit at the head of the island is seen clear of Tooth Point, then steer boldly in on midchannel courses, passing 200 yards off the bluff at South end of Chisik Island, 0 Chick, and favor the island side keeping about 2 to 3

hundred yards off.

If desirous of anchoring near the entrance, anchor in 17 to 19 fathoms close in to Chichagof under the highest bluff just before reaching the first shingle beach. The cries of the gulls breeding here will indicate the anchorage. See the harbor sheet.

To proceed to the upper anchorage, follow the shore of the island until abreast of the house and anchor in 17 to 19 fathoms.

Reports said that the lower anchorage was more free from williwaws, but the swinging room is very little. I anchored here in a couple of westerly blows, and the "willies" seemed as bad as in the upper anchorage.

The only other secure anchorage is behind Harriet Point, and this is open to all northerly winds, but sheltered from the prevailing Southerly gales. See sheet of Capt. F. H. Hardy, 1911, The McArthur always rounded Harriet Point from 1 to 1 1/2 miles off and ran in about 3/4 mile and anchored 1/2 mile off shore in about 5 fathoms at L.W., Sandy bottom. Harriet Point bore about S.S.E. true.

In smooth weather, of course, anchorage can be made any where along the coast. It gets very choppy off the fish trap at Pt. Redoubt in a moderate on-shore breeze.

Sailing Directions.

Sailing directions as needed can be taken from the chart. The main thing is to bear in mind at all times the strong currents and allow about 2 to 3 miles an hour for four hours in the strength of the tide, and about 1 knot for the hour before and after turn of the tide.

The bank off Bear Flat should be avoided especially by vessels of more than 12 ft. draft. Care must be taken to avoid being set upon the shoals which extend ten miles southward from Kalgin Island and which were developed by the Patterson (W.E.Parker, 1910). Vessels should not go to the westward of a line from the outer end of Chisik Island to Harriet Point, and should keep at least a mile off the western shore of Kalgin Id., and 1 1/2 miles eastward of Harriet Point.

There is a passage with 15 ft. M.L.L.W. across the shoal just south of Kalgin Island. This passage was surveyed by the Patterson. It is used constantly by the cannery tenders to Pt. Redoubt, and was used once by the McArthur. A front range between Chisik Head and ~~Wo~~ Woodchuck Pt. should be picked out as the currents on either side run 3 to 4 miles and are nearly slack immediately in the lee of the island. There may be boulders in this passage, as there are boulders on the flats off Kalgin Island.

The usual course of the McArthur from Seldovia to Tuxedni Harbor avoided the tide rips off Bear Flat and was to make good as follows, From Seldovia Head a N. 29° W. true course for 41 miles, then make good 6 1/2 miles N. 74° W. to the S.E. end of Chisik Island.

Dangers.

The dangers mentioned below are not definitely described. They are all on the sheets, and mentioned to call attention to them.

(a) A shoal, not developed, about 1 mile east off Pt. Chinitna. See sheet.

(b) The 11 ft. shoal southeast of Moon Id.

(c) The rocky shoals northward off Moon Id.

(d) The bank extending northward from the south entrance to Chinitna Bay (off 0 Dead).

(e) The rocky reef which bares, and is 1/4 mile off 0 Rose.

(f) A rocky shoal, 9 ft, off 0 Miss 1/4 mile.

(g) A large boulder which bares 2 ft., and lies 1/2 mile S.E. from 0 Bear Flat.

(h) Another boulder which bares about 1 ft. about 3/8 mile eastward from 0 Bear Flat.

(i) The shoal water from 3 to 6 miles off Bear Flat. Has been mentioned before, has depth of 3 1/2 to 7 fathoms over it.

(j) The small reef extending a short distance off the S.E. end of Chisik Id.

(k) The rock and the sand shoal extending off Woodchuck Pt., and the boulders along the northern passage into Tuxedni Harbor.

(l) A bank with 2 fathoms which lies 3 miles off shore about 4 1/2 miles South (magnetic) from Redoubt Pt. (See 1:40 000 Sheet).

(m) The shoals which extend ten miles southward from Kalgin Id.

(n) The boulders off 0 Key and Harriet Point.

Methods of Work.

Triangulation had been carried up the Inlet previously and there were a few located points at intervals of ten to twenty miles. The signals from Harriet Pt. to △ Wood were located by P.T. traverse. A topographic base was taped inside Tuxedni Harbor and the work there based on this and a P.T. Triangulation. Later Hump △ was determined from the main inlet stations, and with the azimuth known and the taped base the positions of E. Base, W. Base, Edni, Point, and Wood were computed.

Hill A was cut in by sextant from ship as were a number of

other hills. Sharp Peak, Slope Mt., and nearly all of the peaks south of Tuxedni were cut in and computed from three stations on the east side of the Inlet. These three stations were not intervisible, but azimuths were used to get directions. All of the signals along the beach and in Chinitna Bay were located by P.T. traverse and the computed peaks were used for checks and at times for location. There was no triangulation in Chinitna Bay. Bear Flat was originally located by a weak triangle. This position was checked by three point method on peaks and used. An attempt was made to fill the triangle but △ Chinitna could not be seen.

Contours.

The locations of hills as computed were plotted on the sheet and various others cut in as was convenient. Elevations were determined by vertical sextant angles from the ship and corrected for dip and distance of shore line. Several elevations were determined, when possible, and the mean taken. With this for control and such other cuts and elevations as could be taken at times the contours were sketched in. The contours dotted in on the smooth sheet were guesses, both the distances of the peaks and the elevations being estimated. These, however, are not far from the true locations and elevations. The estimated peaks are mainly about ten miles from the shore and back of Chinitna Bay. Of course I could not see very well in the space between the foothills and Iliamna Vol., and could not get more than two sharp cuts on hills there.

Soundings.

In shoal water the soundings were with hand lead at slow speed.

From 10 to 25 fathoms the soundings were made with the hand lead and trolley at full speed. A 30 to 40 lb. lead was used. The lead took the water just forward of the bridge, and was read when up and down at the platform around the after port whaleboat davit. Of course, the angles were taken when the lead took the water, and it was assumed that it would sink and reach bottom at about the place over which the observer was standing when it took the water. Any error in location would be much less than half a ship's length. Good soundings could be obtained at full speed to about 20 fathoms; above that speed would either slow down or stop before sounding.

When in depths of more than 20 to 25 fathoms the Bassnett tubes were used, and the ship continued at full speed. The barometer reading at 4 hour intervals were recorded in the sounding records. The tube was bent on the line about four feet above the lead. The depth recorded would not be in error from this cause more than a foot.

The angles was taken when the lead was let go and consequently all the soundings were obtained at a distance of about 1 1/2 ship lengths aft of the position. As the water was deep this error can be neglected.

The bottom was smooth enough to make pressure tube soundings of sufficient accuracy for this section, and the work was greatly expidited by their use; also greater accuracy would have been out of place as the more frequented portions of the lower Inlet had been sounded out in this manner by the Patterson.

Villages, Supplies, etc.

There are no villages or inhabitants between Harriet Pt. and Pt.

Chinitna. The nearest village to the south is at Iliamna Bay; to the north Tyonek. There is a fishing camp in summer at Pt. Redoubt and on the east side of Kalgin Island; the cannery tenders call for fish at these traps two to three times a week during the fishing season; the camp is established about June 1", and abandoned in August.

No vessels call at any harbor on the west side at present. The nearest points at which supplies of any kind can be obtained are the villages on the east side of the Inlet. Stores are at Seldovia and Kenai, and a small one at Port Graham. No provisions in quantities can be purchased at Kasilof.

Repairs to the hulls of small vessels can be made at Seldovia and Kenai. There is a good carpenter and several assistants at Seldovia. All of the canneries have carpenters, but their time is occupied.

Repairs to machinery can be made at the canneries at Port Graham, Seldovia, Kasilof, and Kenai on the east side. Each cannery has lathes and a small machine shop, and the one at Kasilof can do any kind of work up to turning a small shaft. Repairs made at the canneries must be done during the spare time of the cannery machinists.

Game.

Both Tuxedni Harbor and Chinitna Bay are supposed to be resorts of black and brown bear. A number were seen by members of the party. I heard a report that a few years ago more than fifty were counted at one time on the flats around Woodchuck Pt. Bear were seen all along the coast from Harriet Pt. southward.

There are no moose on this side of the Inlet. A few caribou

are supposed to be here; we saw no signs of them.

The only edible ducks seen were the Eider. These were not in great numbers and were very wild. It was strange that Mallards, Canvas backs, and Teals are found in great numbers on the flats at Kasilof, Kenai, and the upper Inlet and none south of Harriet Point.

A few grouse were seen around Bear Flat and some ptarmigan high up on Slope Mountain.

In former days Chinitna Bay was the rendezvous for the hunters of the sea otter. Now that the law forbids killing the otter, of course, there are no hunters. One sea otter was seen by the party.

There are very few fish in either bay. The salmon follow the east shore of the Inlet. We were not able to secure enough to supply the ship's mess. The glacier water in each bay probably accounts in part for their absence. The fishing station at Pt. Redoubt hardly justifies itself, and is maintained because at times certain winds seem to cause the fish to run along the west shore and every few years there is a good catch.

Halibut were reported to be off Chinitna Bay; none were caught by the party.

Mines and Prospects.

The country is not supposed to be a mineral bearing region. There are no mines and no prospectors were seen. Country is all conglomerate and without outward signs of mineral.

Here and there are spots where some attempt at agriculture might be made, but the level country is not sufficient to justify the trial. The western side is colder than the eastern, the ice and snow on the beach is several days later in disappearing.

A profile of the mountain tops is attached, together with a sketch of the hills from Ninilchik, and some descriptive notes by Mr. Trueblood, who did all of the topography.

Respectfully submitted,

E. G. Quillian

Assistant, C. & G. Survey,
Chief of Party.

Tuxedni Harbor to Harriet Pt.

Mouth of Crescent Creek is on a distinct pt. (wood) 3 mi. N.E. of N. pt. of Chisik Isd. 500 m. E. on the flats is a small heavily wooded island of about 5 acres. From this pt. N. a crescent shaped sand beach on which are occasional large boulders extends 5 mi. N.E. ~~It~~ A clay bank 15 to 25 ft high rises from storm water line for the first 4 mi. On both sides of the creek (Indian) which flows into the center of this bight the shore is low and sandy. For 3± mi. back the country is flat & heavily timbered with spruce. Sand & mud flats partly bare at LW and on which are numerous large isolated boulders extend two mi. ~~or~~ more or less offshore from this stretch of beach.

Redoubt Pt. is a rounding pt. with ~~the~~ bare clay bluffs rising to about 250 ft. and sloping back ~~more~~ smoothly to about 400 ft. beyond which the general elevation rises gently to 1000 or 1200 at the base of Smooth Hill (2900). The point is marked by 3 conspicuous bluffs whose tops as seen from offshore are cone shaped.  The beach is thickly

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strewn with stones & boulders of all sizes which have evidently washed out from the caving soil. The top is covered with a dense growth of alder. Close inshore on the flats are numerous rocks awash. 1½ mi. N. is a fish trap with a float for loading fish moored about 500 m. out.

For 4 mi. N. from Redoubt Pt. there are extensive clay bluffs and the beach is very rocky. In the open bight at the upper end of this stretch there are numerous large individual boulders on the sand & mud flats. Closer inshore they are thicker. The north shore of this bight is sandy and runs out to a low wooded point at the mouth of a creek. This is 3 mi. S of Harrich Pt. From one mi beyond this pt. the bluff is almost continuous to the north and the shore is very rocky. Sand flats awash at L.W. with boulders on them extend 600 m. offshore in places.

Harrich Pt. is a very distinct pt. in the shore line and is marked by caving yellow clay bluffs 70 to 150 ft high. and is thickly covered with alders on top.

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Tuxedni Harbor to Harr et Pt

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From Redoubt to Harriet Pt. the land rises from 300 to 400 ft. ~~in~~ in 400 to 600 m. from shore. ~~If~~ Then it slopes ~~up~~ gently to the base of the hills beyond, though there are occasional depressions and some deep ravines. ~~A heavy growth of alder~~ with scattering patches of spruce ~~covers the whole country~~ Open spruce woods cover this section with dense growths of alder in the open spaces.

Watering Places. The best is a the low wide fall 2 mi. north of Redoubt Pt. A small boat can come close inshore at ~~the~~ W at this pt. There are numerous other fresh streams but they ~~are~~ all of them have extensive flats at their mouths.

Landing Places ~~At all~~. There are occasional short sand beaches 50 to 150 m. long where a boat may be landed safely. ~~but~~ The cove 3½ mi. north of Redoubt Pt. is a good place except at L.W. and ~~the~~ at H.W. any part of the beach from Creasson Creek North for 5 mi. In general the landing is bad on account of boulders, flats and the exposed situation.

Tuxedni Harbor to Harriet Pt.

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All contours shown in dashed lines were sketched from the ~~deck~~ bridge of the steamer while she was under way sounding. The contours on the hills back 2 ~~miles~~ miles or more were also sketched in this way but ~~were~~ very much better controlled by elevations.

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Dangers & Islands.

See Boat Sheets

Rocks off the southerly pt. of the islands about 400 m.

Duck Isd. and reefs surrounding.

Reefs along the n. shore of Chisik Isd. near ⊙ Stop.

Flats & boulders off W. end Chisik Island.

Watering Places.

On the shingle beach near Anch. Exposed to S.E. swell but small boat can be taken right up to the bank at any tide. Stream is small late in the season.

The large stream opposite is inaccessible except at H.W. on account of the rocky flats there.

Small stream falls over cliff ~~200~~ 300 m. E. of ⚓ Anch. Boat can be backed under ~~it~~ fall at H.W. and can be taken close in at L.W.

Methods.

Shore line of Tuxedni Harbor was run in from a measured (by tape) topographic base on the flats opposite Chisik Island. This base was afterward connected

Department of Commerce and Labor Tuxedni Harbor.

with the Cook Inlet triangulation by a local scheme.

The shore line of Chisik Island from △ Elmi to Lux and of the main land from △ Point ~~to~~ (W.W. rock next N ine) was ~~run in~~ plotted on the sheet from notes taken in the field. The signals opposite, also E. W, & middle Base were first located and then points in the shore at intervals of about 400 m were located by sextant angles between the known points. The shore line between consecutive points was then sketched in a notebook and ~~later~~ transferred to the sheet as the points were plotted. Eight (stat.) mi. of shore line were thus run in one day easily.

The remainder of the Chisik Island shore was run in two traverses joining ~~above~~ on the north side of the island, the error of closure being distributed in proportion to the lengths of the traverses.

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Upper End - Tuxedn Harbor

Shore on both sides bordered by mud flats. Very wide out in front of Fish-Dot. About abreast of Dot. the bay divides into two big sloughs with a flat between them. This flat bares (between Dot & Eider only) at LLW. Left or S.E. slough ends in a number of branches just below the island on which Splash is. Rt hand slough has one fork running (between Seal & the n.w. spot.

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Inside of Chisik Island.

Signals W. from Hole.

1. W.W. square on face of bluff about 15' above H.W. and facing a long shingle beach. ½ mi. ± W. of Hole. Not marked.

2. W.W. sharp rectangular boulder in a slide and about 75' above H.W. Boulder is of about 1½ cu. yd. and is not conspicuous from the beach is buried with very much larger ones. At the foot of the highest bluff on the north side of the island.

3. W½. W. face of large boulder about 20 m. back from and 15' above H.W. This rock is conspicuous and shows a rounded angle off shore with comparatively flat surfaces up and down the beach.

4. W.W. diamond on the vertical face of a cliff directly inshore from Duck Island. From D. I sd. to the E. the signal is hidden by a projecting pt of rock. About 15' up from H.W.

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5 ~~Large~~ ww boulder. Large and conspicuous. Roughly rectangular with almost faces to N.S.E. Top slopes ~~rather~~ about 30° to S. from which side it may be climbed. This rock is just in the edge of tidewater. Top about 12' above H.W.

6. Ice.

7. W washed face of projecting point of cliff. } Many + many. ww put on from boat.

8. " " " " " " " "

9. Stop. ~~W.W. fa~~

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From Bear Flat to Times.

Red. Center pole. blew down before located.

Blue. } one a cp. sighted
Jog } other a cage nailed in spruce tree.

Bank cp.

More. cp.

From Gabbe to Times.

Small Pi. ?? } W.W. spots — W W on face of rock 20' above + 10 m back of H.W. N. side of pt. in shore line.

Star — } — — — ◇ on vertical face of rock in small light. about 10' above H.W.

Nek. Sharp reef. bowl. on slide about 20' above + 10 m back from H.W.

Times ..... on face of cliff about 30' above and 10-15 m. back from H.W.

At head of Luxedni Harbor.

——. W.W. spot on bluff — m — from Plane

— m. — from Seal.

Name on boat sheet.

OVER.

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Signals marked on the mud flats along the sloughs about Seal and Splash were all sticks set in the mud and merely temporary

except the N.W. mark on the face of the bluff 800± m. about NW. from ⊙ Plane on the same side. This is the only signal on the N. side of this slough above Plane.

Signals on left hand side of Harbor going up from Eider.

1 W.W. on face of projecting point of bluff.

2. " " " " " " " " "

3.? " . short angular boulder on slide at foot of bluff. About 15 above H.W.

"Yel" a yellow bluff facing E. Indefinite.

Page. 61 or 63. Put "Ram" on sketch.
Desc. of Sta.

Page 63 Put "mud" on sketch.

Sheet 3355

1911 . Statistics of Ship's Hydrography on the West side of Cook Inlet, from Harriet Pt. to Chinitna Pt.

Date	Day	Vol.	Soundings	Angles	Stat. miles	Ship
June 19	A	1	89	64	18	U.S.S.McArthur
" 21	B	1	75	64	18.5	"
" 22	C	1	89	79	18.5	"
" 27	D	1	112	112	32.8	"
" 28	E	1	83	62	19.2	"
" 30	F	1	102	72	26	"
July 1	G	1	29	42	11	"
" 10	H	1	74	65	12.2	"
" 17	I	1	112	112	33.5	"
" 17	I	II	80	53	22.2	"
" 18	J	II	116	130	30	"
" 19	K	II	90	119	29	"
" 20	L	II	55	87	21	"
" 27	M	II	120	114	32	"
" 28	N	II	47	76	20.2	"
Aug. 1	O	II	111	118	29.5	"
" 2	P	II	32	48	11	"
" 7	Q	II	16	28	7.2	"
" 7	Q	III	95	104	32.5	"
" 8	R	III	162	244	52	"
" 9	S	III	161	258	50.5	"
" 10	T	III	177	208	51	"
" 11	U	III	165	198	42	"
" 11	U	IV	76	66	14.7	"
" 12	V	IV	152	154	29.5	"
" 14	W	IV	295	198	48	"
" 15	X	IV	231	136	34	"
" 16	Y	IV	271	182	37	"
" 28	Z	V	167	194	32	"
Sept. 14	AA	V	172	110	29.5	"
" 15	BB	V	476	262	60	"
" 16	CC	V	254	166	51.5	"
" 19	DD	V	62	18	5	"
" 20	EE	VI	171	74	25	"
" 21	FF	VI	87	56	21	"
" 22	GG	VI	292	146	34	"
" 23	HH	VI	108	60	20	"
" 24	II	VI	335	216	71	"
" 26	JJ	VI	323	212	71	"
" 27	KK	VII	278	200	64	"
Totals 40 days, 7 Vols.			5942	4907	1267.0	

Soundings 100 to 900 inclusive and
1 EE to 12 EE " rejected by
direction of Chief Draftsman June 28, 1912

VEC
May 10,1912.

HYDROGRAPHIC SHEEE 3355.

Cook Inlet, Alaska, by Asst. C. G. Quillian

in 1911.

TIDES.

	Seldovia ft.	Chinitna ft.	Tuxedni ft.
Mean lower low water, or plane of reference on staff	5.4	5.1	5.1
Lowest tide observed " "	-0.3	2.1	0.9
Highest " " " "	27.9	22.8	25.4
Mean range of tide	15.4	12.8	14.0